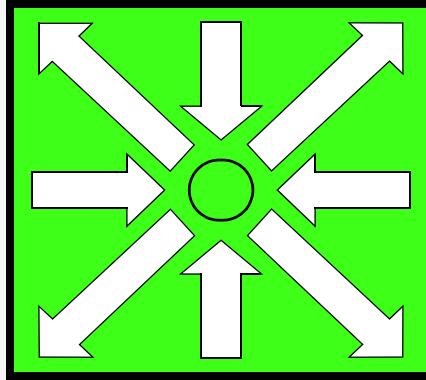


Cisco LightStream 1010



Supports Management Module SM-CIS1002

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Introduction

This section introduces the SPECTRUM Device Management documentation for the Lightstream 1010 ATM Switch manufactured by Cisco.

This introduction contains the following topics:

- [Purpose and Scope](#)
- [Required Reading](#)
- [Supported Devices](#) (Page 7)
- [The SPECTRUM Model](#) (Page 7)

Purpose and Scope

Use this document as a guide for managing the Cisco devices described on [Page 7](#) with SPECTRUM management module SM-CIS1002. This document describes the icons, menus, and views that enable you to remotely monitor, configure, and troubleshoot Lightstream devices through software models in your SPECTRUM database.

Information specific to SM-CIS1002 is what is primarily included in this document. For general information about device management using

SPECTRUM and explanations of SPECTRUM functionality and navigation techniques, refer to the topics listed under [Required Reading](#).

Required Reading

To use this documentation effectively, you must be familiar with the information covered by the other SPECTRUM online documents listed below.

- ***Getting Started with SPECTRUM for Operators***
- ***Getting Started with SPECTRUM for Administrators***
- ***How to Manage Your Network with SPECTRUM***
- ***SPECTRUM Views***
- ***SPECTRUM Menus***
- ***SPECTRUM Icons***
- ***SPECTRUM Software Release Notice***

Supported Devices

SPECTRUM management module SM-CIS1002 currently lets you model the Cisco LightStream 1010 ATM Switch. The LightStream 1010 is a five slot modular chassis that provides switched ATM connections to individual workstations, servers, LAN segments, or other ATM switches and routers, using fiber-optics, unshielded twisted-pair (UTP), and coaxial cable. The central slot is dedicated to an ATM Switch Processor (ASP) module that supports both 5 Gbps shared memory and fully non-blocking switch fabric. The ASP card also supports a Reduced Instruction Set (RISC) processor that is the intelligence for the chassis. The remaining slots support up to four Carrier Modules (CAMs) with each of these supporting up to two Port Adapter Modules (PAMs).

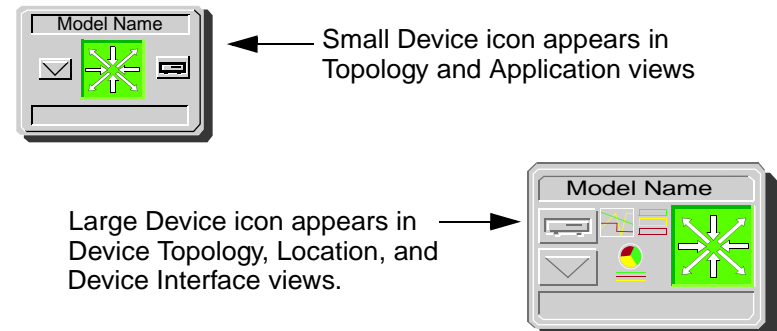
The SPECTRUM Model

The model type for the Cisco devices is LS1010. Modeling results in the creation of Device icons that represent the devices and Application icons that represent their supported applications.

The Device icons contain double-click zones and provide access to Icon Subviews menus that let you perform device management activities such as those listed in [Tasks](#) on Page 9.

As [Figure 1](#) shows, the appearance of the Device icons varies slightly depending on the kind of view it appears in.

Figure 1: Device Icons



The device-specific Icon Subviews menu options available from the Device icon are listed below.

Option	Accesses the...
Fault Management	Fault Management View, which is described in the How to Manage Your Network with SPECTRUM documentation.
Device	Device View (Page 10)
DevTop	Device Topology View (Page 20)
Application	Application Views (Page 21)
Configuration	Configuration Views (Page 56)
Model Information	Model Information View (Page 78)
Primary Application	Menu options that let you select either Gen Bridge App or MIB-II as the primary application.

The rest of this document covering the Cisco management module is organized as follows.

- [Tasks](#) (Page 9)
- [Device View](#) (Page 10)
- [Device Topology View](#) (Page 20)
- [Application Views](#) (Page 21)
- [Performance Views](#) (Page 54)
- [Configuration Views](#) (Page 56)
- [Model Information View](#) (Page 78)

Tasks

This section contains an alphabetical list of device management tasks, with each task providing one or more links to views that let you perform the task.

Administrative Information (check)

- [Model Information View](#) (Page 78)

Alarm Thresholds (set)

- [Interface Icon Subviews Menu](#) (Page 11)

Configuration Information (check)

- [Configuration Views](#) (Page 56)

Enable or Disable Redundant Addresses

- [Redundancy and Model Reconfiguration Options View](#) (Page 58)

Identify Applications Supported

- [Supported Applications](#) (Page 22)

IP Address (find/change)

- [Device View](#) (Page 10)
- [Secondary Address Panel](#) (Page 11)

Performance (check)

- [Device View](#) (Page 10)
- [Performance Views](#) (Page 54)

Port Status (check/change)

- [Interface Status View](#) (Page 11)

Topology (check)

- [Device Topology View](#) (Page 20)

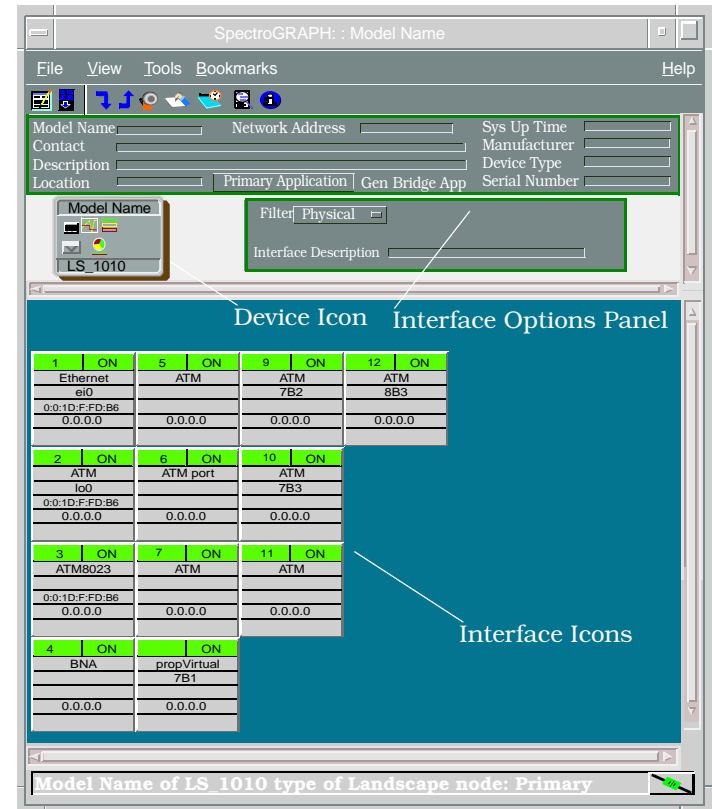
Device View

This section describes the Device view and subviews available for models of Cisco devices in SPECTRUM.

Access: From the **Icon Subviews** menu for the Device icon, select **Device**.

This view ([Figure 2](#)) uses icons and labels to represent the device and its components, such as modules, ports, and applications. The view provides dynamic configuration and performance information for each of the device's serial and network I/O ports, which are represented by Interface icons in the bottom panel of the view. The middle panel of the view displays a Device icon, which lets you monitor the device operation and access other device-specific views.

Figure 2: Device View



Interface Icon Subviews Menu

Table 1 lists the device-specific interface Icon Subviews menu options and the views to which they provide access.

Table 1: Interface Icon Subviews Menu

Option	Accesses the...
Detail	Interface Detail view, which displays packet, error, and discard breakdown statistics for the interface.
IF Status	Interface Status View (Page 11).
IF Configuration	Interface Configuration View (Page 65).
IF Address Translation Table	Interface Address Translation Table, which identifies the physical and network address for the interface.
Secondary Address Panel	Secondary Address Panel (Page 11).
Thresholds	Interface Threshold view, which lets you set the on/off alarm thresholds for load, packet rate, error rate, and % discarded for the interface.
Model Information	Model Information View (Page 78).

Interface Status View

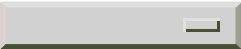
Access: From the **Icon Subviews** menu for the Interface icon in the Device view, select **IF Status**.

This view provides information on the operational status of the interface and allows you to enable or disable the port.

Operational Status

The current state of the interface (Up, Down, Unknown, Dormant, Not Present, Lower Layer Down, or Testing).

Administrative Status




This button allows you to select the desired administrative state of the interface (On, Off, or Testing).

Secondary Address Panel

Access: From the **Icon Subviews** menu for the Interface icon in the Device view, select **Secondary Address Panel**.

This panel provides a table of IP addresses and masks obtained from the Address Translation table within the device’s firmware. You can change the current address displayed in the **IP Address** field by selecting an entry from the table in this panel and clicking the **Update** button.



Note:

The Lightstream 1010 ASP and PAMs may be installed in the Catalyst 5500 switch chassis. In the Catalyst 5500 switch chassis the ASP must be installed in slot number 13 and the PAMs installed in slots 9 through 12.

Logical Device View

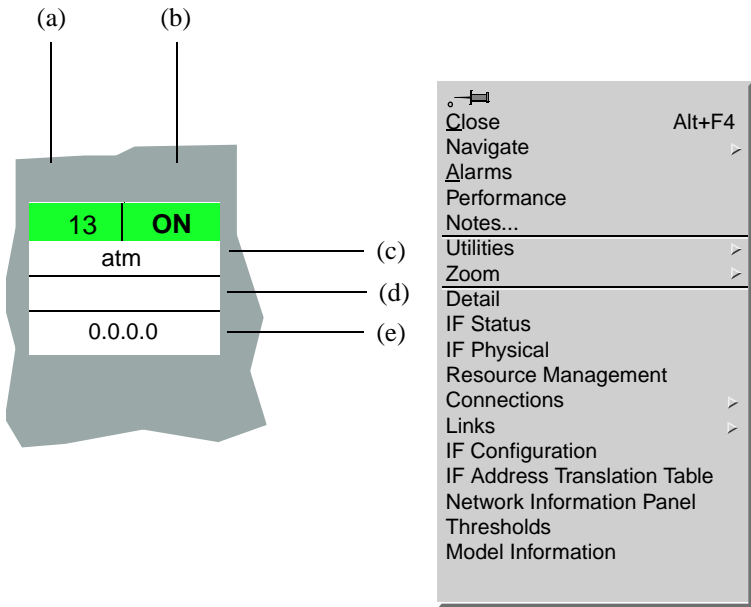
The Logical Device view is a representation of the device configuration. If the configuration of the device changes during the polling cycle, SPECTRUM automatically updates the view.

Figure 3 shows the Logical Device view.

Interface Icon

Figure 4 shows a detailed illustration of the Interface icon, its double-click zones, and Subviews menu.

Figure 3: Interface Icon



The following defines the interface icon labels a-f, shown in Figure 3, and any double click zones that can be accessed from this icon.

- a** Interface Label
- b** Administrative Status Label/LightStream Interface Status View

- c Interface Type Label/LightStream Interface Configuration View
- d Mac Address Label/LightStream Interface Address Translation Table View
- e Network Address Label

Interface Label

This label displays the interface (port) number. Administrative Status Label

This label displays the status of this interface. Double-click this label to open the LightStream Interface Status View described on page 14. [Table 2](#) lists the possible status values.

Table 2: Administrative Status Values

Color	Status	Description
Green	ON	Port is operational.
Blue	OFF	Port is off, admin status is off.
Red	TST	Port is in the test mode.
Orange	OFF	Port is off, admin status is on.

Interface Status View

The Interface Status view provides the following information for the selected interface:

Operational Status

A read-only indicator displaying the current operational state of the interface. The possible states are ON, OFF, Testing, and Default which is not defined.

Administrative Status

A drop-down menu button that allows you to select the operational state of the interface. The possible states are ON, OFF, Testing, and Default which is not defined.

InterfaceType Label

This label displays the interface type. Possible types are listed in [Table 3](#). Double-click this label to open the LightStream Interface Configuration View, described in [Configuration Views](#) (Page 56).

Table 3: Interface Types

Type	Description
Other	None of the following
Reg1822	Regular 1822
HDH1822	HDLC Distant Host protocol
DDNX25	Defense Data Network X.25
rfc877X25	RFC877 X.25
Ethernet	Ethernet CSMA/CD
iso88023	ISO CSMA/CD

Table 3: Interface Types (Continued)

Type	Description
iso88024	ISO token bus
iso88025	ISO token ring
iso88026	ISO man
starLan	StarLAN IEEE 802.3
Prot10MB	ProNET 10 Mbps
Prot80MB	ProNET 80 Mbps
HyChan	Hyperchannel
FDDI	Fiber Distributed Data Interface
LAPB	X.25 Line Access Procedure, Balanced
SDLC	IBM Synchronous Data Link Control protocol
T1	T1 link (USA and Japan)
CEPT	T1 link (Europe)
BasicISDN	Basic Integrated Services Digital Network
PrimISDN	Proprietary Integrated Services Digital Network
PPSerial	Proprietary Point to Point Serial
PPP	Point to Point Protocol

Table 3: Interface Types (Continued)

Type	Description
SFTWARLPBK	Software Loopback
CLNPoverIP	Connectionless Network Protocol over IP
Enet3MB	Ethernet 3 Mbps
XNSoverIP	Xerox Network Service Protocol over IP
SLIP	Generic Serial Line IP
ULTRA	ULTRA Technologies
T-3	T3 link
SMDS	Switched Multimegabit Data Service
FrameRelay	T1 Frame relay
ATM	Asynchronous Transfer Mode
PropVirtual	?
BNA	?

MAC Address Label

This label displays the MAC address of the device interface. Double-click this label to open the Interface Address Translation Table View, described on [Page 15](#).

Interface Address Translation Table View

In addition to the following information, you can double-click any entry in the table to access to the Interface Address Translation Information View, which contains the same information as the table view with the exception that it pertains only to the selected entry.

Interface Index

The value identifying the port.

Physical Address

The physical (MAC) address of the port.

Network Address


The network (IP) address of the port.

Network Address Label

This label displays the current IP address of the interface.

Interface Icon Subviews Menu

Table 4 describes the Interface icon device-specific Subviews menu selections.



Note: Some of the interface Icon Subviews menu selections may be grayed out for all of the interface types except atm because they are not applicable to those interface types.

Table 4: Interface Icon Subviews Menu

Menu Selection	Description
Detail	Opens the Interface Detail view, described in the SPECTRUM Views documentation.
IF Status	Opens the Interface Status View (Page 11).
IF Physical	Opens the Interface Physical Error View (Page 16).
Resource Management	Opens the Switch Resource Management Configuration View (Page 67)
Connections	Contains two sub menu selections; SVC Addresses, and SVP Addresses, described in this chapter.

Table 4: Interface Icon Subviews Menu

Links	Contains two sub menu selections; Virtual Channels, described in this chapter, and Virtual paths, also described in this chapter.
IF Configuration	Opens the Interface Configuration View, described in Configuration Views (Page 56).
IF Address Translation Table	Opens the Interface Address Translation Table View (Page 15).
Secondary Address Panel	Opens the Network Information Panel View, described on page ?.
Thresholds	Opens the Interface Threshold View (Page 19).
Model Information	Opens the Model Information View, described in the SPECTRUM Views documentation.

Interface Icon Subviews Menu Selections

Interface Physical Error View

The Interface Physical Error View provides the following error information on a specific interface:

If Index

The index number identifying the port to which it is attached.

Status

The current status of the interface. The value of this object is only valid when the interface's Administrative Status is set to "up". Possible values are los, lof, loc, ais, yellowLine, yellowPath, lop, idle, yellowAlarm, plcpLOF, plcpYellow, maFERF, pathAis, and ocd.

Plcp Bip Violations

The number of Physical Layer Convergence Protocol (PLCP) BIP violations on the physical interface. This object is only present for DS3/E3 interfaces.

Section Parity Errors

The number of section parity errors on the physical interface. This object is only present for SONET interfaces.

LCV Errors

The number of Line Code Violation (LCV) errors on the physical interface. This object is only present for DS3/E3 interfaces.

C Bit Parity Errors

The number of C-bit parity violations on the physical interface. This object is only present for DS3/E3 interfaces.

Path Parity Errors

The number of B3 (BIP) errors on the physical interface. This object is only present for SONET interfaces.

P Bit Parity Errors

The number of P-bit parity violations on the physical interface. This object is only present for DS3/E3 interfaces.

Connections

This Subview menu selection contains two sub-selections; SVC Addresses and SVP Addresses.

SVC Addresses

The Switched Virtual Channel (SVC) Address Table view provides the following information:

IF Index

The index number identifying the interface to which it is attached.

SVC Addresses

The SVC address. This depends on the direction the interface is in. Possible values are: p2pcalling (point to point calling), p2pcalled (point to point called), p2mproot (point to multi-point root), and p2mpleaf (point to multi-point leaf).

VPI Value

The SVC’s Virtual Path Identifier (VPI) value, on this interface.

VCI Value

The SVC’s Virtual Channel Identifier (VCI) value, on this interface.

SVC Direction

This value indicates whether the selected Virtual Channel Link (VCL) is the calling side, the side that has been called, the root side or the leaf for this address. Possible values are listed in [Table 5](#).

SVP Addresses

The Switched Virtual Path (SVP) Address Table view, provides the following information:

SVP Address

The address of the switched virtual path, depending upon whether the paths direction is: p2pCallingSide, p2pCalledSide, p2mpRoot or p2mpLeaf.

SVP’s VPI

The Switched Virtual Path’s (SVP) VPI value on this interface.

SVP Direction

This value indicates whether the SVP is on the calling side, the called side, the root side or the leaf side. [Table 5](#) lists the possible values.

Table 5: SVC & SVP Direction Values

Value	Description
p2pCallingSide	Point to point calling side.
p2pCalledSide	Point to point called side.
p2mpRoot	Point to multi-point root.
p2mpLeaf	Point to multi-point leaf.

Links

This subview menu selection contains two sub-selections; Virtual Channels and Virtual Paths.

Virtual Channels

Opens the IF Virtual Channel Link Table view which provides the following information on the switch’s VCLs. In addition, double-clicking any entry in this table will open the ATM IF Virtual Channel Link View.

VPI

The SVC’s VPI value on this interface.

VCI

The SVC’s VCI value on this interface.

Cast Type

The VCL cast type, its possible values are: point to point, point to multi-point root, and point to multi-point leaf.

Span Type

The VCL span types which can be either a transit connection or a terminating one. If it is a transit connection, then it is passed on, if it is a terminating connection, then it ends there.

Config Type

The VCL configuration types. Possible values are: permanent, switch, soft, and other.

In Cells

The total number of cells received on the selected VCL.

Out Cells

The total number of cells transmitted on the selected VCL.

Virtual Paths

Opens the IF Virtual Path Link Table view which contains the same information as the IF Virtual Channel Link Table view described on page [-18](#).

Interface Threshold View

The Interface Threshold View provides the following information:

Load Threshold

The ON and OFF values are set to determine the point at which a load alarm will be turned on or off.

Packet Rate Threshold

The ON and OFF values are set to determine the point at which a packet transmission alarm will be turned on or off.

Error Rate Threshold

The ON and OFF values are set to determine the point at which an error alarm will be turned on or off.

% Discarded Threshold

The ON and OFF values are set to determine the point at which a discarded threshold alarm will be turned on or off.

Device Topology View

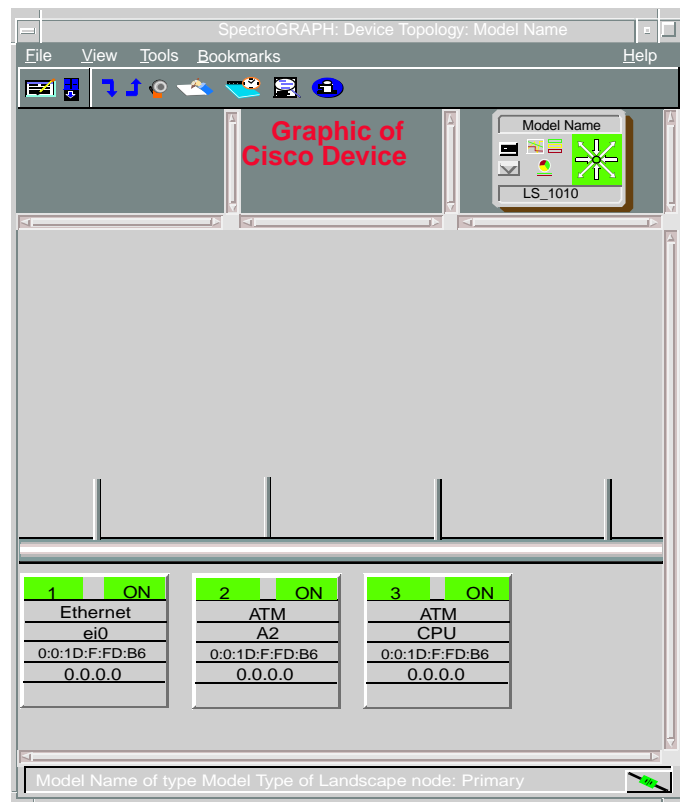
This section describes the Device Topology view available for models of the Cisco LightStream devices.

Access: From the **Icon Subviews** menu for the Device icon, select **Device Topology**.

The Device Topology view (Figure 4) shows the connections between a modeled device and other network entities. The lower panel of the view uses Interface icons to represent the device's serial, network, and I/O ports. These icons provide the same information and menu options as those in the [Device View](#) (Page 10). If a device is connected to a particular interface, a Device icon appears on the vertical bar above the Interface icon along with an icon representing the network group that contains the device.

Refer to the **SPECTRUM Views** documentation for details on Device Topology view.

Figure 4: Device Topology View



Application Views

This section describes the main Application view and the associated application-specific subviews available for models of Cisco devices in SPECTRUM.

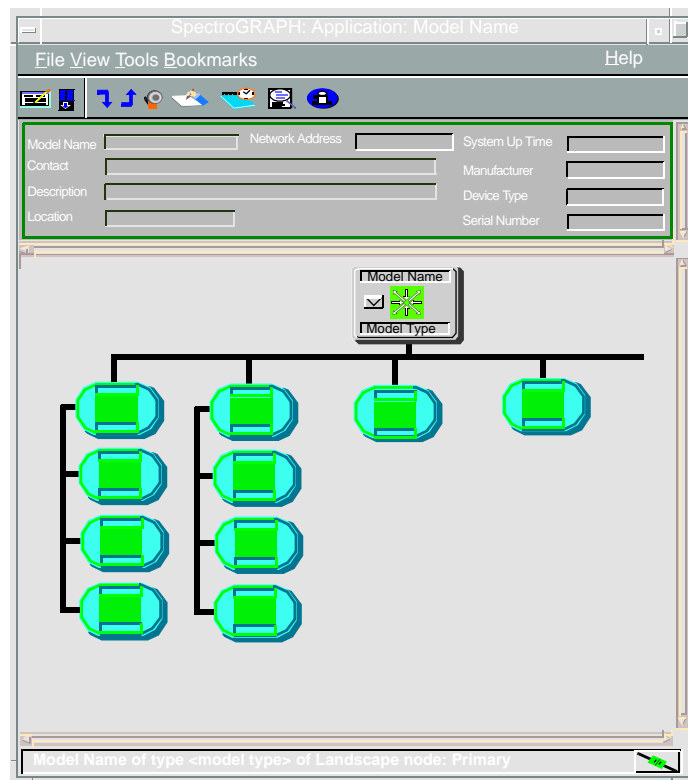
Access: From the **Icon Subviews** menu for the Device icon, select **Application**.

Main Application View

When a device model is created, SPECTRUM automatically creates models for each of the major and minor applications supported by the device. The main Application view identifies all of these application models, shows their current condition status, and provides access to application-specific subviews. [Figure 5](#) shows this view in the Icon mode. If you prefer the List mode, which displays applications as text labels, select **View > Mode > List**.

For more information on this view, refer to the **MIBs and the Application View** documentation.

Figure 5: Main Application View



Supported Applications

SPECTRUM's applications can be grouped within two general categories as follows:

- Applications associated with non proprietary MIBs. See [Common Applications](#) below.
- Applications associated with device-specific MIBs. See [Device-Specific MIBs](#) (Page 23).

Common Applications

For the most part, these applications represent the non proprietary MIBs supported by devices. Listed below (beneath the title of the SPECTRUM document that describes them) are some of the common applications currently supported by SPECTRUM. Refer to these documents when your devices support these applications.

**Note:**

The documents listed below (in bold font) are available for viewing at:

www.aprisma.com/manuals/

- **Routing Applications**

- Generic Routing
- Repeater
- AppleTalk
- DECnet

- OSPF
- OSPF2
- BGP4
- VRRP

- **Bridging Applications**

- Ethernet Special Database
- Spanning Tree
- Static
- Transparent
- PPP Bridging
- Source Routing
- Translation
- QBridge

- **MIB II Applications**

- SNMP
- IP
- ICMP
- TCP
- System2
- UDP

- **Transmission Applications**

- FDDI
- Point to Point
- DS1
- DS3
- RS-232

- WAN
- Frame Relay
- Token Ring
- Ethernet
- Fast Ethernet
- rfc1317App
- rfc1285App
- rfc1315App
- 802.11App
- SONET
- **Technology Applications**
 - APPN
 - ATM Client
 - DHCP
 - PNNI
 - rfc1316App
 - DLSw
- **DOCSIS Applications**
 - DOCSISCB1DvApp
 - DOCSISQOSApp
 - DOCSISBPI2App
 - DOCSISBPIApp
 - DOCSISIFApp
- **Digital Subscriber Line (DSL) Applications**
 - ADSL

Device-Specific MIBs

SPECTRUM imports the following device-level proprietary MIBs into its database:

- LS-SWITCH-MIB
- LS-CHASSIS-MIB
- CISCO-CHASSIS-MIB
- CISCO-IF-MIB
- CISCO-TS-MIB

These MIBs can be used in conjunction with SPECTRUM's optional customization products (referred to as the Level I Tool Kits) to create application models and views that display the condition of selected MIB objects.



Note:

Aprisma Management Technologies can provide training, technical assistance, and custom engineering support services for creating application models and their associated views.

The following device-specific applications are described in the remainder of this section:

- [*Switching Application \(LS_Switch_App\)*](#)
- [*Chassis Application \(LS1010Chas_App\)*](#)
(Page 44)
- [*Cisco Chassis Application \(CiscoChas_App\)*](#)
(Page 48)
- [*Cisco Interface Application \(CiscoIFApp\)*](#)
(Page 50)
- [*Terminal Server Application \(CiscoTSApp\)*](#)
(Page 50)
- [*Cisco Memory Pool Application*](#) (Page 52)

Switching Application (LS_Switch_App)

This application provides access to ATM switching functionality for this device. The following application-specific Icon Subviews menu selections are available for the ATM switching application.

Interface

This menu selection contains the following sub selections.

Switch Application TC Sublayer Table View

From the Icon Subviews menu for the LS_Switch_App icon, select Interface >

This view provides the following information.

IF Index

The value of this object identifies the interface for which the entry contains management information.

OCD Events

The number of times that the Out Of Cell Delineation (OCD) events occur. If seven

consecutive ATM cells have header errors, an OCD event will occur.

TC Alarm Status

This variable indicates that there is an alarm present for the TC Sublayer. The value lcdfailure indicates that a Loss of Cell Delineation (LCD) failure has been declared.

Switch Application DS3 PLCP Table View

This view provides the following information:

IF Index

The value of this object identifies the interface for which the entry contains management information.

SEFSs

The number of Digital Signal, Level 3 Physical Layer Convergence Protocol (DS3 PLCP) Severely Errored Framing Seconds (SEFSs). Each SEFS represents a one second interval which contains one or more SEF event.

Alarm State

This variable indicates whether an alarm is present for the DS3 PLCP. [Table 6](#) lists all possible values.

Table 6: DS3 PLCP Alarm Values

Value	Description
noAlarm	No alarm is currently present.
received FarEnd Alarm	The DS3 PLCP has received an incoming yellow signal.
incomingLOF	The DS3 PLCP has declared a Loss Of Frame failure condition.

UASs

The counter associated with the number of Unavailable Seconds (UASs) encountered by the PLCP.

Switch Interface Physical Layer View

This view displays the IF Index of all interfaces currently attached to the device. Double-click any of the index entries to open the Interface Physical Error View, described in [Device View](#) (Page 10).

Cross Connect Table View

This Icon Subviews menu selection contains the following sub selections which contain information about all virtual channel and virtual path cross connections, in addition these views contain a Row Status Procedure, which enables

you to create a new connection or remove an existing one.

Row Status Procedure

- 1** Click the Index button to select an index value. This will display AVC Cross Connect Index dialog box which will provide an index.
- 2** Set Connection Information: Enter the requested information for this connection in the box labeled Connection Information, then press return.
 - a** Click OK in the Save Changes dialog box.
- 3** Click either the Create Connection button or the Remove Connection Button.

Switch Application Virtual Channel Cross Connect Table View

In addition to the following information, this table also provides double-click access to the Switch Application Virtual Channel Cross Connect View.

Index

A unique value used to identify this VC cross-connect.

Low IF

The value of this object is equal to the index value of the ATM interface port for this VC cross-connect.

Low VPI

The value of this object is equal to the VPI value at the ATM interface associated with this VC cross-connect.

Low VCI

The value of this object is equal to the VCI value at the ATM interface associated with this VC cross-connect.

High IF

The value of this object is equal to the index value for the ATM interface port for this VC cross-connect.

High VPI

The value of this object is equal to the VPI value at the ATM interface associated with the VC cross-connect **High Index**, defined above.

High VCI

The value of this object is equal to the VCI value at the ATM interface associated with the VC cross-connect **High Index**, defined above.

Admin Status

The value of this object identifies the desired administrative status of the VC cross-connect. Possible states are up or down indicating that the traffic flow is enabled or disabled respectively.

Row Status

The status of an entry in the table. Possibilities are active, notInService, notReady, createAndGo, createAndWait, and destroy.

Switch Application Virtual Channel Cross Connect View

This view contains the same information as the Switch Application Virtual Channel Cross Connect Table view, except it applies only to a single entry within the table. Also, this view contains the following information:

L2H Op Status

This value identifies the current operational status of the VC cross-connection in one direction (i.e., from low to high).

H2L Op Status

The value of this object identifies the current operational status of the VC cross-connection in one direction (i.e., from high to low).

L2H Last Change

This value is the same as the MIB II's System Up Time at the time the VC cross-connect became active in a low to high direction.

H2L Last Change

This value is the same as the MIB II's System Up Time at the time the VC cross-connect became active in a high to low direction.

Switch Application Virtual Path Cross Connect Table View

This view contains the following information:

Index

A unique value used to identify this VC cross-connect.

Low Index

The value of this object is equal to the index value of the ATM interface port for this VC cross-connect.

Low VPI

The value of this object is equal to the VPI value at the ATM interface associated with this VC cross-connect.

High VPI

The value of this object is equal to the VPI value at the ATM interface associated with the VC cross-connect **High IF**, defined above.

Admin Status

The value of this object identifies the desired administrative status of the VC cross-connect.

Possible states are up or down indicating that the traffic flow is enabled or disabled respectively.

Row Status

The status of an entry in the table. Possibilities are active, notInService, notReady, createAndGo, createAndWait, and destroy.

Switch Application Virtual Path Cross Connect View

This view contains the same information as the Switch Application Virtual Path Cross Connect Table view, with the exception that it pertains only to the table entry selected. Also, this view contains the following information:

L2H Op Status

This value identifies the current operational status of the VP cross-connection in one direction (i.e., from low to high).

H2L Op Status

The value of this object identifies the current operational status of the VP cross-connection in one direction (i.e., from high to low).

L2H Last Change

This value is the same as the MIB II's System Up Time at the time the VP cross-connect became active in a low to high direction.

H2L Last Change

This value is the same as the MIB II's System Up Time at the time the VP cross-connect became active in a high to low direction.

Link Table View

This Icon Subviews menu selection contains the following sub selections which contain information about all virtual channel and path cross links, in addition these views contain a Row Status Procedure, which enables you to create a new link or remove an existing one.

Row Status Procedure

- 1** Set Link Information: Enter the requested information for this connection in the box labeled Link Information, then press return.
 - a** Click OK in the Save Changes dialog box.
- 2** Click either the Create Link button or the Remove Link Button.

Switch Application VCL Table View

In addition to the following information, this table also provides double-click access to the Switch Application Virtual Channel Link View, which contains the same information as the table view with the exception that it pertains only to the entry clicked on.

IF

The index number associated with this interface.

VPI

The Virtual Channel's VPI value on this interface.

VCI

The Virtual Channel's VCI value on this interface.

Admin Status

The value of this object identifies the desired administrative status of the VCL. Possible states are up or down indicating that the traffic flow is enabled or disabled respectively.

Oper Status

The current operational status of the VCL.
Possible states are up, down, and unknown.

Rx Index

The row of the ATM Traffic Descriptor Table which applies to the receive direction of this VCL.

Xmit Index

The row of the ATM Traffic Descriptor Table which applies to the transmit direction of this VCL.

AAL Type

The type of ATM Adaption Layer (AAL) used on this VCL. Possible values are aal1, aal34, aal5, other, and unknown.

Xmit Size

The maximum AAL5 Common Part Convergence Sublayer (CPCS) Service Data Unit (SDU) size, in octets, that is supported on the transmit direction of the VCL.

Rx Size

The maximum AAL5 CPCS SDU size, in octets, that is supported on the receive direction of this VCL.

Encaps Type

The type of data encapsulation used over the AAL5 SSCS layer. Possible types are vcMultiplexRoutedProtocol, vcMultiplexBridgedProtocol8023, vcMultiplexedBridgedProtocol8025, vcMultiplexedBridgedProtocol8026, vcMultiplexedLANemulation8023, vcMultiplexLANemulation8025, llcEncapsulation, multiprotocolFrameRelaySscs, other, and unknown.

Cross Connect Id

The connection identifier for a VCL which is cross-connected to another VCL on the same VCC.

Row Status

The status of an entry in the table. Possibilities are active, notInService, notReady, createAndGo, createAndWait, and destroy.

Switch Application VCL View

To access this view, double click any entry within Switch Application VCL Table view. This view contains the same information as the table with the exception that the information pertains only to the selected entry. Also, this view contains the LightStream Table Extension button which is described below.

LightStream Table Extension

This button opens the Switch Application Interface Virtual Channel Link Table Extension View described below.

Switch Application Interface Virtual Channel Link Table Extension View**Num Attempts**

Number of retries made to install this soft virtual path connection.

Install Time

The time when the VC counter began. This time is derived from **System Up Time**.

Slow Retry Interval

Soft Permanent Virtual Connection (SPVC) retry rate, in seconds.

OAM End Loopback

Enable end-to-end loopback on this virtual table.

OAM AIS Enable

Enables the Alarm Indication Signal (AIS) function of the Operations, Administration and Maintenance (OAM) cell generation, if the connection goes down.

OAM RDI Enable

Enables the Remote Defect Indication (RDI) of the OAM cell generation, if the connection goes down.

Cross IF Index

For point to point connections, this number is the index for the cross-connected VPL for this VPL. For point to multipoint, this will be the root index VPL or this is the first leaf of a root VPL entry.

Cross VPI

This number specifies the VPI value of the VPL to which this VPL is connected.

Cross VCI

This number specifies the VCI value of the VPL to which this VPL is connected.

In Cells

The total number of cells received on this VPL.

Out Cells

The total number of cell transmitted on this VPL.

AAL Encap Protocols

Protocol for terminating the Virtual Channel, if the encapFlag value is set to aal5mux. Possible protocol values are: ip, xns, appletalk, clns, decnet, novell, apollo, vines, and other.

AAL Encap Flag

Encapsulation type for terminating a Virtual Channel. Possible values are: aal5Snap, aal5Nlpid, aal5FrNlpid, aal5mux, aal34Smds, aalQsAal, aal5Ilmi, aal5Lane, and aal5Pnni.

AAL User VC Type

User virtual circuit types. These only apply if the encapsulation type is aal5Lane. Possibilities are: boxConfigure, busForward, busSend, clientConfigure, clientData, clientDirect, clientDistribute, client Forward, clientSend, configure, serverConfigure, serverDirect, and serverDistribute.

Next Leaf IF Index

For a point to point connection this value will be zero (i.e not used). For a point to multi-point connection this will be the next leaf VCL's interface index on the multicast chain. This value will be zero, if this is the root VCL and if the value

is zero for a leaf VCL. This also means that this is the last leaf.

Next Leaf VPI

This value applies only to point to multi-point connections where this will be the next leaf VCL's VPI on the multicast chain.

Next Leaf VCI

This value applies only to point to multi-point connections where this will be the next leaf VCL's VCI on the multicast chain.

Location

Indicates whether the Soft PVC is the called side or the calling side.

Last Release Cause

Number referencing a Cause Information Element which indicates the reason for the last software change.

Atm in Arp Interval

The time interval, in minutes, to send Address Resolution Protocol (ARP) on a PVC for IP over ATM.

Cast Type

The VCL cast type. Possible values are point to point, point to multi-point root, or leaf.

Span Type

The VCL span type; either a transit one or a terminating one.

Config Type

The configuration type of the VCL. Possible values are permanent, switch, soft, or other.

Remote Addr

Soft PVC target address if this is the calling side of the connection else Soft PVC source address if this is the called side.

Remote VPI

Soft PVC target VPI in the calling side of the connection. This value is zero if this is the called side.

Remote VCI

Soft PVC target VCI in the calling side of the connection. This value is zero if this is the called side.

Rx UPC Mode

This value represents the Usage Parameter Control (UPC) object. Possible values are: passing, tagging, dropping, or local shaping.

EPD Enable

This value represents the Early Packet Discard (EPD) operation and is either enabled or disabled.

Conn State

The Connection State of this VCL, possible values are setup, **release**, not installed, down, and up.

Switch Application VPL Table View

This view contains the following virtual path link information:

IF

The interface value associated with this entry.

Admin Status

The value of this object identifies the desired administrative status of the VPL. Possible states are up or down indicating that the traffic flow is enabled or disabled respectively

Oper Status

This value indicates the current status of the VPL. Possible values are up, down, and unknown.

Rcv Index

The value of this object identifies the row in the Traffic Description Parameter Table which applies to the receive direction on the VPL.

Xmit Index

The value of this object identifies the row in the Traffic Description Parameter Table which applies to the transmit direction on the VPL.

Cross Connect Id

A unique value used to identify this VPL's cross-connection.

Row Status

The status of an entry in the table. Possibilities are `active`, `notInService`, `notReady`, `createAndGo`, `createAndWait`, and `destroy`.

ATM Switch Application VPL Table View

To access this view, double-click an entry in the Switch Application VPL Table view. This view contains the same information as the table, with the exception that it pertains only to the selected entry. Also, this view contains the following information:

Last Change

Displays the time the VPL entered its current operational state.

VPI

The Virtual Path Identifier for this index entry.

Switch Application Addresses View

In addition to the following information, this table also provides double-click access to the Switch Application Address View.

Index

The index value attached to this switch.

Address

A valid address for a given switch.

Row Status

This object is used to create and delete rows in the Switch Address Table. Possible values are: `active`, `notInService`, `notReady`, `createAndGo`, `createAndWait`, and `destroy`.

Switch Application Traffic Parameter Table View

Access: From the **Icon Subviews** menu for the **LS_Switch_App** icon, select **Traffic Parameter**.

In addition to the following information, double-clicking any entry in this table will open the Switch Application Traffic Parameter View, which contains the same information as the table view with the exception that it pertains only to the selected entry.

Index

This object is used by the virtual link table to identify the row of this table

Descriptor Type

The value of this object identifies the type of ATM traffic descriptor.

Param 1

The first parameter of the ATM traffic descriptor.

Param 2

The second parameter of the ATM traffic descriptor.

Param 3

The third parameter of the ATM traffic descriptor.

Param 4

The fourth parameter of the ATM traffic descriptor.

Param 5

The fifth parameter of the ATM traffic descriptor.

QoS Class

The value of this object identifies the Quality of Service (QoS) class. [Table 7](#) identifies the Service Class values.

Table 7: Service Class Values

Value	Description
1	cbr.
2	vbrRt.
3	vbrNrt
4	abr
5	ubr
6	notDef

Row Status

Indicates the status of the row entry. This value is also used to create delete and modify existing rows. Possible values are: active,

notInService, notReady, createAndGo, createAndWait, and destroy.

Explicit Cat

This object indicates the service category specified by the Traffic Descriptor. When defined this category determines the Service Category for the connection. Possible values are described in [Table 7](#).

Derived Cat

This object defines the Service Category derived from the Traffic Descriptor. This object mirrors the **Explicit Cat**, if that entry is defined and not equal to notDef.

Switch Application AAL5 VCC Table View

Access: From the **Icon Subviews** menu for the *LS_Switch_App* icon, select **AAL5 VCC Performance**.

IF Index

A unique value used to identify the device.

VPI

The VPI value of the AAL5 VCC at the interface identified by the interface index.

VCI

The VCI value of the AAL5 VCC at the interface identified by the interface index.

Errors

The number of AAL5 CPCS PDUs received with the CRC-32 errors on this interface

Time Outs

The number or partially reassembled ALL5 CPCS PDUs which were discarded on this interface because they were not fully reassembled within the required period.

Oversized SDUs

The number of AAL5 CPCS PDUs discarded on this interface because the SDUs were too large.

Switch Application Registered Services View

Access: From the **Icon Subviews** menu for the *LS_Switch_App* icon, select **Registered Services**.

Instance (IF Index, Service ID, Address Index)

The value which uniquely identifies the type of service at the address given by the corresponding address contained in ATM Address.

ATM Address

An ATM address to which the ATM end-systems on this User Network Interface (UNI) can attempt to establish a connection for the service.

Parameter 1

An octet string used according to the value of the Registered Services Service ID.

Row Status

The status of this row. Possible values are:

active, notInService, notReady, createAndGo, createAndWait, and destroy.

Accounting Control

These views are for the management, collection, and storage of accounting information as pertains to connections in a connection oriented network.

Switch Application Accounting Selection Control Table View

Index

A unique value that identifies a list or subtree stored in this table.

List

The combined values of this field and **Subtree**, specify which data is to be collected.

Subtree

The combined values of this field and **List**, specify which data is to be collected.

Type

Indicates the types of connections for which the information selected by this entry are to be collected.

File

The name of the file into which all accounting information, identified by the index, will be stored. If the index number does not match an actual row in the table, then no data is collected

Row Status

The status of this row. Possible values are:

active, notInService, notReady, createAndGo, createAndWait, and destroy.

Switch Application Accounting File Control Table View

Index

A unique value identifying a file into which accounting data is to be stored. This value is required to be the permanent handle of the entry for as long as it exists.

Name

The name of the file into which the accounting data is to be stored. If the naming convention is a combination of suffixes then the name of the current file is the concatenation of **Name** and

Suffix. The value of this field cannot be modified if the value of **Row Status** is `active`.

Description

The description of the accounting data, which will be stored when header information is stored in the file.

Format

The format of the data stored in the file. The value `ber` indicates the standard format.

Command

Commands that will cause the data stored in the file to either be written or read. Writing a value to this field is only allowed when the current value is `'idle'`. When a value is successful written, the value of this field changes to `cmdInProgress` until completion of the action, at which time the value reverts to `'idle'`. [Table 8](#) defines the values that may be written to this field.

Table 8: Command Values

Value	Description
swapToNewFile	The collection of data into the current file is terminated, and the collection continues into a new file.
collectNow	The agent creates and stores a connection record into the current file for each active connection having a type matching Type and an age greater than Min Age .

Row Status

The status of this row. This object cannot be set to `'active'` until it has been assigned a **Name**. Data can only be collected when the value of this object is `active`.

Interval

The number of seconds between the periodic collection of accounting data.

Min Age

The minimum age of a connection, which is the elapsed time since the connection was last installed.

Cur Size

The current size of the file, including header information.

Max Size

The maximum size of the file, including header information.

Switch Application Accounting Interface Table View

Admin Status

The desired state of accounting records across all interfaces.

Oper Status

The operational state of the collection of accounting records across all interfaces.

Protection

Protects against the duplication of SNMP messages which could cause the disruption of the collection and retrieval of accounting data.

Agent Mode

An indication of the behavior mode of the agent when a file becomes full. [Table 9](#) defines possible mode values

Table 9: Agent Mode Values

Value	Description
swapOnCommand	The agent does not automatically swap to a new file; rather, it discards newly collected data until a management application subsequently instructs it to swap to a new file.
swapOnFull	The agent terminates collection into the current file when the file becomes full.

This view also contains the IF Control Table, which consists of:

Index

A unique value identifying the interface to which it is attached.

Accounting Data Enabled

Indicates whether the collection of data is enabled on this interface.

Switch Application Accounting Trap Control View

Nearly_full Trap Threshold

A percentage of the maximum file size at which a 'nearly_full' trap is generated.

Traps Enabled Status

An indication of whether the 'nearly_full' or 'full' traps are enabled.

Switch Application ATM Access Group Table View

Access: From the **Icon Subviews** menu for the *LS_Switch_App* icon, select **Access Group Table**.

Index

A unique value identifying the interface to which it is attached.

Inbound Access Group Name

The name of an ATM address filter set or expression used for access control for an inbound call on the associated interface.

Outbound Access Group Name

The name of an ATM address filter set or expression used for access control for an outbound call on the associated interface.

PNNI

This Icon Subviews menu selection contains the following sub selections which contain in-depth information about the device's Private Network to Network Interface (PNNI functionality):

- [Switch Application PNNI Base View](#)
- [Switch Application PNNI Node Table View](#) (Page 40)
- [Switch Application PNNI Interface Table View](#) (Page 41)
- [Switch Application PNNI Precedence Table View](#) (Page 43)
- [Switch Application Route Address Table View](#) (Page 43)

Switch Application PNNI Base View

Computation Enabled

Specifies whether the background route computation is enabled on this switching system. It is recommended that this field be enabled in large networks due to improved scalability in terms of processing requirements.

Polling Interval

Specifies how often the switching system polls in order to discover any significant changes that

would require a new computation of the background routes.

Insignificant Threshold

Specifies the number of insignificant changes necessary to trigger a new computation of the background routes.

Resource Management Polling Interval

Specifies how often Private Network to Network Interface (PNNI) polls resource management to update the values of local interface metrics and attributes.

Administrative Weight Mode

Specifies the mode of default administrative weight assignment for PNNI interfaces. When the value is set to `uniform`, by default the administrative weight of each PNNI interface is set to 5040, as defined in the ATM Forum PNNI 1.0 specifications. When the value is set to `linespeed`, by default the administrative weight is set based on the linespeed or maximum cell rate of the interface.

Maximum Administrative Weight Percentage

Specifies the maximum acceptable administrative weight for alternate routes as a percentage of the least administrative weight of any route to the destination. This only takes effect when background route computation is enabled.

Route Optimization Threshold

Specifies the percentage reduction, in the administrative weight of the existing path, required to trigger route optimization.

Switch Application PNNI Node Table View**Internal Summary Address(es)**

Specifies whether automatic generation of an internal summary address based on the switch address or node ID is enabled.

Redistribute Static Routes

Specifies whether redistribution of ATM static routes to the PNNI routing domain is enabled.

Maximum PTSE Requests

Specifies the maximum number of PNNI Topology State Elements (PTSEs) that can be requested in one PTSE request packet.

Name

The name of the PNNI node.

Scope Mapping

Specifies the configuration mode of the mapping from organizational scope values to PNNI scope.

Double-clicking any entry in this table will open the Switch Application PNNI Node View, which

contains the same information as the table view except that it pertains only to the selected entry.

Switch Application PNNI Interface Table View

Interface

A table of Cisco specific attributes used to configure a physical interface or subinterface on a switching system which is capable of being used for PNNI routing.

Link Selection

For Constant Bit Rate (CBR) or Variable Bit Rate (VBR) setups. Specifies a method for selecting one link out of multiple links with sufficient resources to the same neighbor node. [Table 10](#) describes Link Selection values.

Table 10: Link Selection Values

Value	Description
adminWeightMinimize	transmits the call on the interface with the lowest administrative weight
blockingMinimize	minimizes subsequent call blocking
transmitSpeedMaximize	transmits call on highest speed parallel link
loadBalance	balances calls across parallel links

Route Optimization

Enables or disables the route optimization feature on an ATM interface. [Table 11](#) describes **Route Optimization** values.

Table 11: Optimization Values

Value	Description
disable	disables route optimization on the interface
soft	enables route optimization only for any ATM soft Permanent Virtual Circuits (PVCs) on the interface
switched	enables route optimization only for any ATM switched PVCs on the interface
switchedAndSoft	enables route optimization for both ATM soft and switched PVCs

The remaining fields within this table will only be active if **Route Optimization** is not set to 'disable'.

Interval

Specifies how often route optimization takes place on the interface.

Start Hour

Specifies the starting hour when route optimization will begin on an ATM interface.

Start Minute

Specifies the starting minute when route optimization will begin on an ATM interface.

End Hour

Specifies the ending hour when route optimization will stop on an ATM interface.

End Minute

Specifies the ending minute when route optimization will stop on an ATM interface.

Double-clicking any entry in this table will open the Switch Application PNNI Interface View, which contains the same information as the table view except it pertains only to the selected entry.

Switch Application PNNI Precedence Table View

This table specifies the precedence of different types of reachable addresses, double-clicking any entry within the table will open the Switch Application PNNI Precedence View which contains the same information as the table view except it pertains only to the selected entry. The precedence values are:

- 1 static local internal with metrics
- 2 static local exterior
- 3 static local exterior with metrics
- 4 PNNI remote internal
- 5 PNNI remote internal with metrics
- 6 PNNI remote exterior
- 7 PNNI remote exterior with metrics

Switch Application Route Address Table View

Instance (Node Index. Route Address. Prefix Length. Route Address Index.)

An entry containing Cisco specific PNNI information about a reachable address prefix.

Forwarding E164 Address

The native E.164 address used as the called party address when the call matching **pnniRouteAddrAddress** is forwarded across the interface identified by **pnniRouteAddrIfIndex**.

Chassis Application (LS1010Chas_App)

This application provides access to LightStream ATM chassis functionality for this device. The following subviews are available:

- [Chassis Application Chassis Group View](#) (Page 44)
- [Chassis Application Module Group View](#) (Page 46)
- [Chassis Application Sub Module Group View](#) (Page 46)
- [Chassis Application Port Group View](#) (Page 47)
- [Chassis CPU Switch View](#) (Page 47)

Chassis Application Chassis Group View

Access: From the **Icon Subviews** menu for the LS1010Chas_App icon, select **Chassis Group**.

This view provides the following information about the chassis group:

System

The chassis system type; either LS1010 or other.

Backplane

The chassis backplane type; either ATM or other.

Slots

The number of slots in the chassis for plug-in modules.

Last Change

The last time a physical (module) change was made to the chassis.

Fan Status

Status of the chassis fan. Possible values are: ok, fault or unknown.

12V Status

The chassis 12V status. Possible values are either ok or outOfTolerance.

Enet Link LED

Ethernet Link status LED of the CPU card. Possible values are: off, yellow, red and green.

Fan LED

LED status of fan. Possible values are: off, red, yellow or green.

Temperature Status

The chassis temperature status. Possible values are either ok or overTemperature.

CPU Status LED

LED status of the CPU card. Possible values are: off, red, yellow, and green.

PCMCIA Slot 0 Type

Type of PCMCIA slot for 0. Possible values are: unknown, empty, and flash.

Power Supply 0**Type**

The type of power supply. Possible values are: powerone, astec, and empty.

Admin Status

Enable or disable power supply 0.

Status

Status of power supply 0. Possible values are: ok, fault, and unknown.

LED

LED status of power supply 0. Possible values are: red, yellow, green, and off.

PCMCIA Slot 1 Type

Type of PCMCIA slot for 1. Possible values are: unknown, empty, and flash.

Power Supply 1**Type**

The type of power supply. Possible values are: powerone, astec, and empty.

Admin Status

Enable or disable power supply 1.

Status

Status of power supply 1. Possible values are: ok, fault, and unknown.

LED

LED status of power supply 1. Possible values are: red, yellow, **green**, and off.

Chassis Failure Action

The action to take when there is any chassis failure, including: power failure, voltage, temperature and fan failure. Possibilities are: shutdown, send a trap, send a trap and shutdown, and nothing

Chassis Change Action

The action to take when there is any chassis change, including: a change to the power supply, fan or any boards. Possibilities are nothing or send a trap.

Chassis Application Module Group View

Access: From the **Icon Subviews** menu for the LS1010Chas_App icon, select **Module Group**.

In addition to the following information, this table also provides double-click access to the Chassis Application Module Group Configuration View.

Module

A unique value that identifies each module.

Type

The type of module.

Serial

The serial number of the module.

Hw Version

The hardware version of the module.

Sw Version

The software version of the module.

Description

A descriptive string used by the agent to describe the module.

Sub Modules

The maximum number of sub-modules supported on this module.

Admin Status

The administrative status of the module. Possible values are: enable, disable, and reset.

Chassis Application Sub Module Group View

Access: From the **Icon Subviews** menu for the LS1010Chas_App icon, select **Sub Module Group**.

In addition to the following information, this table also provides double-click access to the Chassis Application Sub Module Group Configuration View.

Module

The module identifier to which the sub-module is attached.

Sub Module

A unique value for each sub-module within the module. This value is determined by the sub-slot number where the sub-module is attached.

Type

The type of sub-module. Possible types are: other, oc3Utp, oc3SingleModeFiber, oc12SingleModeFiber, oc3MultiModeFiber, oc12MultiModeFiber, ds, e3, cpuSwitch, featureFpga, and featureAsic.

Serial #

The serial number of the sub-module.

Hw Version

The hardware version of the sub-module.

Sw Version

The software version of the sub-module.

Description

A descriptive string used by the agent to describe the sub-module.

Ports

The maximum number of ports supported by this sub-module.

Admin Status

The administrative status of this sub-module.
Possible values are reset and ok.

Chassis Application Port Group View

Access: From the **Icon Subviews** menu for the *LS1010Chas_App* icon, select **Port Group**.

This view provides the following information.

Module

A unique value that identifies the module to which this port is attached.

Sub Module

A unique value that identifies the sub-module to which this port is attached.

Port

A unique value identifying each port attached to a sub-module.

Interface

A cross reference to the port's interface index.

Chassis CPU Switch View

Access: From the **Icon Subviews** menu for the *LS1010Chas_App* icon, select **CPU Switch Group**.

This view provides the following information:

Total Cell Buffer Count

The total cell buffer count in the switch's shared memory.

Free Cell Buffer Count

The total number of free cell buffers in the switch's shared memory.

Total Cells Discarded

The total cells discarded by the switch.

Total Invalid Cells

The number of invalid cells on the switch.

CPU Admin Status

CPU Administrative status of the switch. Possible values are ok and reset.

Terminate OAM Flow

Terminate all the incoming OAM cells to the CPU port.

Index

A unique number used to identify the chassis CPU switch.

Invalid Cell Header

A list of invalid cell header entries.

Cisco Chassis Application (CiscoChas_App)

This application provides access to Cisco ATM Interface functionality for this device. The following subviews are available:

- [Chassis Card View](#)
- [Chassis General Information View](#) (Page 49)

Chassis Card View

This view displays the Chassis Slot Table, which provides the following information on the cards contained in the chassis:

Slot

The slot number in which this card is installed. If the slot number is not applicable or not determinable, this field will display-1.

Type

The functional type of the card installed in this slot. The following values are possible types:

Unknown, csc1, csc2, csc3, csc4, rp, csc-m, csc-mt, csc-mc, csc-mcplus, csc-envm, csc-16, csc-p, csc-a, csc-e1, csc-e2, csc-y, csc-s, csc-t, sci4s, sci2s2t, sci4t, mcilt, mci2t, mcils, mcilslt, mci2s, mcile, mcilelt, mcile2t, mcilels, mcilelslt, mcile2s, mci2e,

mci2elt, mci2e2t, mci2els, mci2elslt, mci2e2s, csc-r, csc-rl6, csc-rl6m, csc-1r, csc-2r, csc-cctl1, csc-cctl2, csc-mec2, csc-mec4, csc-mec6, csc-fci, csc-fcit, csc-hsci, csc-ctr, sp, eip, fip, hip, sip, trip, fsip, aip, mip, ssp, npm-4000-fddi-sas, npm-4000-fddi-das, npm-4000-1e, npm-4000-1r, npm-4000-2s, npm-4000-2e1, npm-4000-2e, npm-4000-2r1, npm-4000-2r, npm-4000-4t.

Description

A description of this card.

Software Ver.

The version number of the firmware installed on this card. If no version number is available, this field will remain empty.

Hardware Ver.

The hardware revision level of this card. If no revision level is available, this field will remain empty.

Serial No.

The serial number of this card. If no serial number is available, this field will contain a zero.

Chassis General Information View

This view displays information on the chassis in which the switch is installed. This view is divided into the three sections described below.

Chassis Information

This section of the Chassis Card View provides physical information about the chassis. The following information is provided.

Hardware Revision Level

The version number of the chassis hardware. If the version number is not available, this field will remain empty.

Chassis Type

The type of chassis. Possible chassis types are Unknown, Multibus, Agsplus, Igs, c2000, c3000, c4000, c7000, cs-500, c7010, c2500, and c4500.

Chassis ID/Serial No.

A unique identifier for this chassis. The default value is the serial number of the chassis. If no serial number is available and no alternative ID has been set for the chassis, this field will remain empty.

Number of Chassis Slots

The number of slots in this chassis model.

ROM Information

This section of the Chassis Card View provides the following information about the ROM installed in the chassis:

ROM Monitor Version

The version number of the ROM monitor.

ROM Software Version

The version number of the ROM system software. If no version number is available, this field will remain empty.

Config Register

The current value of the configuration register.

RAM Information

This section of the Chassis Card View provides the following information about the RAM installed in the chassis.

System CPU RAM (bytes)

The amount of RAM available to the CPU, displayed in bytes.

Non-volatile RAM Used (bytes)

The amount of non-volatile configuration memory in use, displayed in bytes.

Non-volatile RAM Size (bytes)

The total size, in bytes, of non-volatile configuration memory.

Cisco Interface Application (CiscoIFApp)

This application provides access to ATM Interface functionality for this device.

Terminal Server Application (CiscoTSApp)

This application provides access to ATM terminal server functionality for this device.

Terminal Server Line View

Access: From the **Icon Subviews** menu for the **CiscoTSApp** icon, select **Line Table**.

This view displays the following information on every terminal attached to the server.

Status

The status of the line.

Type

The type of line. Possibilities are: unknown, console, terminal, line-printer, virtual-terminal, and auxiliary.

Autobaud

Whether the line will autobaud.

Speed In

The input speed at which the line is running.

Speed Out

The output speed at which the line is running.

Flow Control

What type of flow control the line is using. Possibilities are: unknown, none, software-input, software-both, hardware-input, hardware-output, hardware-both.

Modem Control

The type of modem control which the line is using. Possibilities are: unknown, none, call-in, call-out, cts-required, ri-is-cd, and inout.

Location

The line's physical location.

Term Type

The line's terminal type.

Length In Lines

Length, in lines, of the terminal's screen, attached to this line.

Width in Char

Width, in characters, of the terminal's screen, attached to this line.

Escape Char

Escape character used to break out of active sessions.

Idle Time Out

The time, in seconds, before a timeout condition will occur.

Session Time Out

The time, in seconds, before a session timeout condition will occur.

Rotary

The rotary group number the line belongs to.

of Connections

Number of times a connection has been made to or from this line.

Current Session

Current number of sessions in use on this line.

User

TACACS user name, if TACACS is enabled.

Noise

Count of garbage characters received when the line is inactive.

Line Number

A unique value used to identify the line.

Time Active

The time, in seconds, since the line was activated.

Terminal Server Session View

Access: From the **Icon Subviews** menu for the *CiscoTSAApp* icon, select **Session Table**.

This view provides the following information about all current sessions attached to the server.

Type

The type of session. Possibilities are: unknown, pad, stream, rlogin, telnet, tcp, lat, mop, slip, xrfemote, and rshell.

Direction

The direction of the session.

Addr

The remote host address of the session.

Name

The remote host name of the session.

State

A boolean value indicating whether the session is active.

Idle

Time, in seconds, that the session has been idle.

Line

A unique value used to identify the line.

Session

A unique value used to identify the session.

Cisco Memory Pool Application

Access: Within the **Application** view, highlight the *Cisco_Mem_* icon.

Displays statistical information regarding memory of the managed device.

Cisco Memory Pool Monitor Table View

Access: From the **Icon Subviews** menu for the *Cisco_Mem_ Application icon*, select **Memory Pool Monitor**.

This table displays memory pool monitoring entries.

Name

Displays the name assigned to a memory pool.

Alternate

Indicates whether or not this memory pool has an alternate pool configured. Alternate pools are used for fallback when the current pool runs out of memory. If this has a value of zero then there is no alternate.

Valid

This indicates whether or not the remaining objects in this entry contain accurate data. If an instance of this object has a false value, the values of this row may contain inaccurate information.

Used

Indicates the number of bytes from the memory pool that are currently in use by applications on the managed device.

Free

The number of bytes from the memory pool that are currently unused on the managed device.

Largest Free

Indicates the largest number of contiguous bytes from the memory pool that are currently unused on the managed device.

Performance Views

This section provides brief descriptions of the Performance views available for the Cisco devices in SPECTRUM.

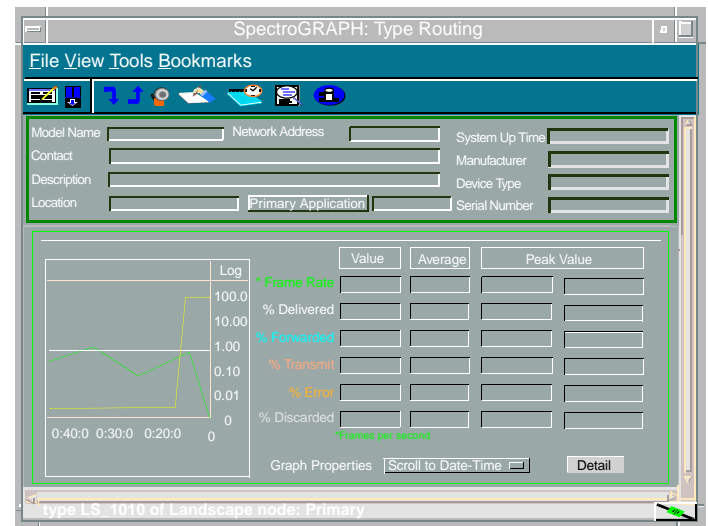
Performance views display performance statistics in terms of a set of transmission attributes, e.g., cell rates, frame rates, % error, etc. A typical view is shown in Figure 6. The instantaneous condition of each transmission attribute is recorded in a graph. The statistical information for each attribute is presented in the adjacent table.

Generally, you determine performance at the device level through Performance views accessed from the Device and Application icons. You determine performance at the port/interface level through Performance views accessed from Interface icons.

For more information on Performance views, refer to the **SPECTRUM Views** documentation.

The following paragraphs list the performance attributes displayed for each Performance view supported by this management module.

Figure 6: Performance View



Device Performance View

Access: From the **Icon Subviews** menu for the Device icon, select **Performance**.

Current and historical frame transmission information is provided via the following attributes.

- Frame Rate
- % Delivered
- % Forwarded
- % Transmit
- % Error
- % Discarded

Port Performance View

Access: From the **Icon Subviews** menu for the Device Interface icon, select **Performance**.

Current and historical packet transmission information is provided via the following attributes.

- Load
- Packet Rate
- % Error
- % Discarded

Configuration Views

This section describes the various Configuration views available for models of the Cisco devices in SPECTRUM.

Configuration views let you view and modify current settings for the modeled device and its interfaces, ports, and applications. The following Configuration views are available for models of Cisco devices:

- [Device Configuration View](#) (Page 56)
- [Interface Configuration View](#) (Page 65)
- [Switch Resource Management Configuration View](#) (Page 67)
- [Switch Resource Management Configuration Details View](#) (Page 69)
- [Switch Application Interface Configuration View](#) (Page 75)

Device Configuration View

Access: From the **Icon Subviews** menu for the Device icon, select **Configuration**.

The Device Configuration view for the Cisco Router ([Figure 7](#)) provides status and configuration information about the device as a whole as well as on a port-by-port basis. It also provides access to Redundancy and Model Reconfiguration Options, the Interface Address Translation Table, the Network/Host Configuration view, and the Cisco Running Config Event/Alarm Configuration view.

Figure 7: Device Configuration View
Primary Address

The IP Address for the modeled device.

Contact Status

The status of the Cisco Router. Possible values are: Established, Lost, or Initial.

Number of Interfaces

The number of ports on the Cisco Router.

Domain Name

An ASCII text string displaying the domain portion of the domain name of the host.

Host Name

An ASCII text string displaying the name of the host.

Why Last Reload

An ASCII text string explaining why the system was last restarted.

Boot Host

The IP address of the host that provided the currently running software.

Authentication Fail

The IP address of the last SNMP authorization failure.

Discover/Reconfigure Control

This button opens the [Redundancy and Model Reconfiguration Options View](#) (Page 58).

IF Address Translation

The button opens the [Interface Address Translation Table View](#) (Page 60).

Network/Host Config

This button opens the [Network/Host Configuration View](#) (Page 60).

Running Configuration Changes

This button opens the Cisco Running Config Event/Alarm Configuration View.

Interface Configuration Table

This section of the Cisco Configuration view provides the following port configuration information for each of the Cisco's ports.

Index

The port number on the Cisco Router.

Description

A textual description of the interface, which may include the name of the manufacturer, the product name, and version number of the hardware interface.

Type

The type of interface for the port.

Bandwidth

The estimated bandwidth of the interface measured in bits per second. For interfaces that do not vary in bandwidth or for which no accurate estimate can be made, a nominal bandwidth is provided.

Physical Address

The Ethernet (MAC) address of the port.

Operation Status

The current operational state of the port (On, Off, or Testing).

Admin Status

The desired operational state of the port (On, Off, or Testing).

Last Change

The System UpTime value when the port entered its current operational state.

Change Reason

An ASCII text string explaining why the system was last restarted.

Queue Length

The length of the outbound packet queue in packets.

Packet Size

The largest Maximum Transmission Unit (MTU) that can be transmitted or received by the port measured in octets.

Redundancy and Model Reconfiguration Options View

Access: In the *Device Configuration View*, click the *Discover/Reconfigure Control* button.

This view allows you to enable redundant addresses, have SPECTRUM notify you of a

redundancy update, and reconfigure aspects of your network connections.

Preferred Addresses

This button opens the Preferred Addresses dialog box which allows you to select the redundant preferred address for the device.

Redundancy Administrative Status

Set this button to “Enabled” to cause SPECTRUM to update this model with an address from the Redundant Preferred Address list when the primary address is not accessible.

Generate Redundancy Alarms

Set this button to “True” to cause SPECTRUM to generate an alarm when a redundant address is selected.

Automatically Reconfigure Interfaces

Set this button to “True” to cause SPECTRUM to monitor the number of interfaces for this device. If a change is detected by SPECTRUM, the interfaces displayed in SPECTRUM are updated to reflect the change.

Create Sub-Interfaces

Set this button to determine if SPECTRUM should model the devices sub-interfaces. If set to “True,” these models will be displayed in the Sub-Interface view of the Physical Interface model.

Reconfigure due to LINK UP/Down events

Set this button to “True” to cause SPECTRUM to verify the interfaces displayed when a LINK UP or LINK DOWN event is received.

Topologically Relocate Model

Set this button to “True” to allow SPECTRUM to relocate the model to a different topological location as part of the AutoDiscovery process.

Device Discovery after Reconfiguration

Set this button to “True” to cause SPECTRUM to verify the interfaces displayed after a model reconfiguration occurs.

Reconfigure Model

This button does a complete re-read of the device and its ports. The SpectroSERVER information for this device will be updated if any of the port addresses have been changed or removed, or if the port type has been changed.

Discover LANs

This button discovers the devices that are connected to the ports for this device. Clicking on this button will create all LANS which are defined for each port.

Interface Address Translation Table View

Access: In the Configuration view, click the **IF Address Translation** button.

This view cross-references device IP addresses to device MAC addresses for selected nodes between networks. Double-clicking on any column entry opens an address-specific Address Translation Table Information view allowing you to modify each of the three fields for that entry.

Network/Host Configuration View

Access: In the Configuration view, click the **Network/Host Config** button.

This view displays the following information.

Network Configuration

The network configuration file contains commands that apply to all network servers and terminal services on a network.

Previous Host Addr

Provides the address of the host that supplied the network configuration file for the managed device.

Previous File Name

Provides the name of the network configuration file that resides on the managed device.

New Host Addr

This field replaces the **Previous Host Addr** field when the Upload Net Config file is selected.

New File Name

This field replaces the **Previous File Name** field when the Upload Net Config file is selected.

Upload Net Config File

Initiates the transfer of configuration file from host to server.

TFTP Server Addr

Address used to send the configuration file from server to a host.

File Name

The file name where you are storing the configuration.

Copy Config to Net

Initiates the transfer of configuration file from server to host.

Host Configuration

The host configuration file contains commands that apply to one network server in particular.

Previous Host Addr

The address of the host that provided the host configuration file for the managed device.

Previous File Name

The name of the last host configuration file used by the device.

New Host Addr

This field replaces the **Previous Host Addr** field when the Upload Host Config file is selected.

New File Name

This field replaces the **Previous File Name** field when the Upload Host Config file is selected.

Upload Host Config File

Initiates the transfer of configuration file from host to server.

Copy Config to NVRAM

Clicking this button writes the current (running) server configuration into Non-Volatile Random Access Memory (NVRAM) where it can be stored and retained even if the server is reloaded.

Clear NVRAM

Clicking this button erases whatever was in Non-Volatile Random Access Memory (NVRAM) on the server.

Cisco Running Config Event/Alarm Configuration View

Access: In the Configuration View, click the **Running Configuration Changes** button.

This view lets you set when the attribute **ccmHistoryRunningLastChanged** is checked. This attribute tells you if and when the configuration has changed. This view also lets you set the generation of either an event or an alarm if it does change. Alarms and events can be set to apply to just the current model or all models of this model type, as described below.



Note:

If **ccmHistoryRunningLastChanged** does change, the user may want to rediscover applications.

Hour to Run Cron Job:

This button allows you to select the hour of day to run the cron job.

Generate Event for This Model

This button allows you to select if you wish to generate an event for this model. Valid options are True and False.

Generate Event For All Models
Of This Model Type

This button allows you to select if you wish to generate an event for all models of this model type. Valid options are True and False.

Generate Alarm For This Model

This button allows you to select if you wish to generate an alarm for this model. Valid options are True and False.

Generate Alarm For All Models
Of This Model Type

This button allows you to select if you wish to generate an alarm for all models of this model type. Valid options are True and False.

Running Configuration Was last Changed At:

The date and time the running configuration was last updated.

**Note:**

A Cisco device that has firmware 12.1 will have the following additional menu buttons in the Configuration view.

Memory Pool Monitor

Opens the [Cisco Memory Pool Monitor Table View](#) (Page 53).

Config Copy Table

Opens the Cisco Config-Copy Table View.

Cisco Config-Copy Table View

A config-copy operation is a request to copy a configuration file of an SNMP Agent running Cisco's IOS software. There are several ways in which this can be done: copying to or from the net (via a protocol like tftp, ftp, or rcp), copying running configurations and vice-versa, or by copying a running or startup config to a file to the local IOS file system and vice versa.

This view displays the ccCopyTable which provides the following information:

Index

Specifies a unique entry in the ccCopyTable.

Protocol

The protocol to be used for any copy. Will default to tftp if not specified. If the copy operation occurs locally on the SNMP agent, this object may be ignored by the implementation.

Source File Type

The type of file to copy from. Either the Source File Type or the Dest File Type (or both) must be of type runningConfig or startupConfig. Also, the Source File Type must be different from the Dest File Type. If the Source File Type has the value of networkFile, the Server Address and File Name must also be created, and these 3 objects together (Source File Type, Server Address, File Name) will uniquely identify the source file. Possible types are networkFile, iosFile, startupConfig, runningConfig, and terminal.

If the Source File Type is iosFile, the File Name must also be created, and the 2 objects together (Source File Type, File Name) will uniquely identify the source file.

Dest File Type

The Destination File Type, which is the type of file to copy to. Either the Source File Type or the Dest File Type (or both) must be of type running Config or startupConfig. Also, the Source File Type must be different from the Dest File Type. If the Dest File Type has the value of network File, the Server

Address and File Name must also be created, and these three objects together (Dest File Type, Server Address, File Name) will uniquely identify the destination file. If the Dest File Type is `iosFile`, the File Name must also be created, and the two objects together (Dest File Type, File Name) will uniquely identify the destination file. Possible types are `networkFile`, `iosFile`, `startupConfig`, `runningConfig`, and `terminal`.

Server Address

The IP address of the TFTP server from (or to) which to copy the configuration file. This object must be created when either the Source File Type or Dest File Type has the value `networkFile`. Values of 0.0.0.0 or FF.FF.FF.FF. for Server Address are not allowed.

File Name

The file name (including the path, if applicable) of the file. This object must be created when either the Source File or Dest File Type has the value `networkFile` or `iosFile`.

User Name

Remote user name for copy via `rcp` protocol. This object must be created when the Protocol is `rcp` or `ftp`. If the protocol is `rcp`, it will override the remote user name configured through the `rcmd remote-username` configuration command. The remote user name is sent as the server user-name

in an `rcp` command request sent by the system to a remote `rcp` server.

User Password

Password used by `ftp` for copying a file to/from an `ftp` server. This object must be created when the Protocol is `ftp`. Reading it returns a zero-length string for security reasons.

Notification On Completion

Specifies whether or not a Notification on Completion should be issued on completion of the `tftp` transfer. If such a notification is desired, it is the responsibility of the management entity to ensure that the SNMP administrative model is configured in such a way as to allow the notification to be delivered.

State

The state of this config-copy request. This value of this object is instantiated only after the row has been instantiated, i.e., after the Row Status has been made active.

Time Started

The time the Copy State last transitioned to running, or 0 if the state has never transitioned to running (for e.g., stuck in waiting state). This object is instantiated only after the row has been instantiated.

Time Completed

The time the Copy State last transitioned from running to successful or failed states. This object is instantiated only after the row has been instantiated. Its value will remain 0 until the request has completed.

Fail Reason

The reason why the config-copy operation failed. This object is instantiated only when the Copy State for this entry is in the failed state.

Row Status

The status of this table entry. Once the entry status is set to active, the associated entry cannot be modified until the request completes (Copy State transitions to successful or failed state).

Add an Entry

This button opens the Add a Cisco Copy Config Entry view which allows you to add an entry to the Cisco Copy Config Table.

Interface Configuration View

Access: Select **IF Configuration** from the Icon Subviews menu.

This view contains more detailed network configuration information for the device interface. This view provides the following information:

IF Index

Displays the index which is attached to the selected interface.

Total Connections

The total number of existing connections at this interface.

ILMI Config

Enable/Disable Interim Local Management Interface (ILMI) configuration on this interface. The configuration takes effect on the next interface restart.

ILMI Auto Config

Enable/Disable ILMI link and interface type determination. The configuration takes effect on the next interface restart

ILMI Address Reg

Enable/Disable ILMI address registration on this interface. This configuration takes effect on the next interface restart.

ILMI Keep Alive

The amount of time, in seconds, that should elapse between successive ILMI keepalive messages sent on this interface. A value of 0 disables this function.

IF Type

Displays the type of interface. Auto-configuration must be disabled to modify this field. [Table 12](#) lists all possible values.

Table 12: IF Type Value

Value	Description
undef	undefined
other	none of the following
uni	user-network interface
pnni	public network-node interface
iisp	inter-switch signalling protocol
nniPvcOnly	network-node interface permanent virtual connection only

UNI Type

The type of User to Network Interface (UNI) this interface is using. Its value can be either public or private.

Side

The side of the network user interface which is either a user or network side. Not Applicable indicates that it is other than uni or iisp.

Port Type

The type of physical layer medium on the port. Possible values are cpu, ethernet, oc3Utp, oc3SingModeFiber, oc3MultiModeFiber, oc12SingModeFiber, ds, e3, and other.

Received Cells

The number of cells received on this interface.

Received Led

The received LED color for this port. Possible values are: off, steadyGreen, steadyYellow, steadyRed, flashGreen, flashYellow, and flashRed.

Xmited Cells

The number of cells transmitted on this interface.

Xmit Led

The transmitted LED color for this port. Possible values are: off, steadyGreen, steadyYellow, steadyRed, flashGreen, flashYellow, and flashRed.

Active SVPs

The number of active Switched Virtual Paths (SVPs) at this interface.

Active SVCs

The number of active Switched Virtual Channels (SVCs) at this interface.

PVPs

The number of Permanent Virtual Paths (PVPs) at this interface.

PVCs

The number of Permanent Virtual Channels (PVCs) at this interface.

Configured VPs

The number of configured Virtual Paths at this interface.

SVC Minimum VCI

The minimum Virtual Channel Identifier (VCI) number for any SVC connection. The number smaller than any new VCI will be allocated to any new PVC. This applies to every Virtual Path Identifier (VPI) number of the physical interface and every logical port.

VC Dest Address

The twenty byte ATM address of the destination ATM interface for soft ATM PVC/PVP.

Switch Resource Management Configuration View

Access: From the **Icon Subviews** menu for the Switching app icon, select **Resource Management**.

This view contains more detailed network configuration information for the device.

This view is divided into two tables that provide the following information.

Default QoS Objective

This table contains resource management configuration information for default Quality of Service (QoS) objective values used when a signalling request is received on a UNI interface. The following fields are cross-referenced by the QoS categories CBR, VBR RT, and VBR NRT.

QoS Max

The default maximum Cell Transfer Delay (CTD) for the service category. It applies only to Constant Bit Rate (CBR) and Variable Bit Rate-Real Time (VBR-RT) service categories. Specifying a value of 16777215 signifies that this parameter should not be checked during connection setup. The units are measured in microseconds.

Peak to Peak CDV

The default peak-to-peak Cell Delay Variation (CDV) for the service category. It applies only to cbr and vbr-rt service categories. Specifying a value of 16777215 signifies that this parameter should not be checked during connection setup. The units are measured in microseconds.

QOS CLR

The default QOS Cell Loss Ratio (CLR) for the service category. Specifying a value of 0 signifies that this parameter should not be checked during connection setup. The units of this object are negative powers of ten.

Queued Cells

This table contains Resource Management information on the cells in the output queues of a shared-memory switch. Rows are indexed by priority and cross-referenced by Cell Limit and Cell Count.

Priority

The cell priority. Possible values are p1, p2, p3, and p4.

Cell Limit

Configured limit on the number of cells on all output queues of the switch at any time of a particular priority.

Cell Count

The number of all cells on all output queues of the switch at any time of a particular priority. In addition to the tables, this view also provides the following information.

Over Subscription Factor

The Over Subscription Factor (OSF) is used on switch startup/OIR to determine the maximum sizes of VBR-NRT and ABR/UBR queues. In general, the larger the value of the OSF specified, the larger the queues are made at startup.

SCR Margin Factor

The Sustained Cell Rate Margin Factor (SCRMF) is used in Connection Admission Control (CAC) of VBR connections to vary the weight given to the difference between Sustained Cell Rate (SCR) and Peak Cell Rate (PCR) specified in the traffic contract.

ABR Congestion Notify

The ABR congestion notification object determines the type of congestion notification used on ABR connections in the switch. This notification can be done either via relative-rate or Explicit Forward Congestion Indication marking in ATM cells or both. Possible values are: Relative Rate, EFCI, and EFCI and Rel Rate.

Switch Resource Management Configuration Details View

Access: From the **Icon Subviews** menu for the Device icon, select **Resource Management**.

This view contains more the following detailed network configuration information for the device.

IF Index

The unique value assigned to the interface for identification purposes.

Link Distance

The link distance defined for the interface, expressed in kilometers.

Best Effort Limit

The limit on the number of Best Effort connections that can be established on this interface. A value of 4294967295 disables this field.

Out Pacing:

Force

Must be set to forceChange, only if changing the pacing rate would reduce the port rate below the value currently allocated to Guaranteed Services Categories (CBR/VBR) for the output flow.

Rate Requested

This field reflects an explicit configuration of the state of pacing, expressed in kilobits per second, for this interface. If the value of this field is zero, pacing is disabled.

Rate Installed

The output pacing value, in kilobits per second. This object is not defined for logical port ATM interfaces.

Traffic Flow

This field contains a button labeled Direction and when clicked on it opens the LightStream Interface Resource Management Traffic Flow Direction View described below.

Service Category

This field contains two buttons, State and Statistics. Clicking on State opens the Interface Resource Management State Information view, described in this chapter. Clicking on Statistics opens the Interface Resource Management Statistics Information view, described in this chapter

Output Queues

This field contains two buttons, Configuration and Thresholds. Clicking on Configuration opens the Interface Resource Management Output Queue Configuration View, described in this

chapter, Clicking on Thresholds opens the Interface Resource Management Thresholds View described in this chapter.

Interface Resource Management Traffic Flow Direction View

This view displays detailed information on the traffic flow direction of the ATM interface.



Note:

A change to the value of these fields will affect subsequent connections, not the existing connection.

Max Aggregate

A configuration in the Controller Link Sharing (CLS) scheme which specifies the maximum aggregate Guaranteed Service (CBR or VBR) traffic that can be allocated in a traffic direction on an interface. It is expressed as a percentage of the maximum traffic direction's bandwidth (applies after output pacing, for example). This object interacts with MaxVbr (if specified) such that $\text{MaxVbr} \leq \text{MaxAgg}$. This object interacts with MaxCbr (if specified) such that $\text{MaxCbr} \leq \text{MaxAgg}$. This object interacts with MaxAbr (if specified) such that $\text{MaxAbr} \leq \text{MaxAgg}$. This object interacts with MaxUbr (if specified) such

that $\text{MaxUbr} \leq \text{MaxAgg}$. If the object is set to -1, the object is considered to be unspecified. This object is not defined for logical port ATM interfaces.

Link Share Min CBR

A Configuration in the Controller Link Sharing (CLS) scheme which specifies a minimum amount of CBR traffic that can be reserved in a traffic direction on an interface. It is expressed as a percentage of the maximum traffic direction's bandwidth (applies after output pacing, for example). This object interacts with MinVbr, MinAbr, MinUbr (if specified) such that $\text{MinVbr} + \text{MinCbr} + \text{MinAbr} + \text{MinUbr} \leq 95\%$. This object interacts with MaxCbr (if specified) such that $\text{MinCbr} < \text{MaxCbr}$. If the object is set to -1, the object is considered to be unspecified. This object is not defined for logical port ATM interfaces.

Link Share Max CBR

A Configuration in the Controller Link Sharing (CLS) scheme which specifies the maximum CBR traffic that can be allocated in a traffic direction on an interface. It is expressed as a percentage of the maximum traffic direction's bandwidth (applies after output pacing, for example). This object interacts with MinCbr (if specified) such that $\text{MinCbr} \leq \text{MaxCbr}$. This object interacts with MaxAgg (if specified) such that $\text{MaxCbr} \leq$

MaxAgg. (not defined for logical port ATM interfaces).

Link Share Min VBR

A Configuration in the Controller Link Sharing (CLS) scheme which specifies a minimum amount of VBR traffic that can be reserved in a traffic direction on an interface. It is expressed as a percentage of the maximum traffic direction's bandwidth (applies after output pacing, for example). This object interacts with MinCbr, MinAbr, and MinUbr (if specified), such that $\text{MinVbr} + \text{MinCbr} + \text{MinAbr} + \text{MinUbr} \leq 95\%$. This object interacts with MaxVbr (if specified) such that $\text{MinVbr} \leq \text{MaxVbr}$. If the object is set to -1, the object is considered to be unspecified. This object is not defined for logical port ATM interfaces.

Link Share Max VBR

A configuration in the Controller Link Sharing (CLS) scheme which specifies the maximum VBR traffic that can be allocated in a traffic direction on an interface. It is expressed as a percentage of the maximum traffic direction's bandwidth (applies after output pacing, for example). This object interacts with MinVbr (if specified) such that $\text{MinVbr} \leq \text{MaxVbr}$. This object also interacts with MaxAgg (if specified) such that $\text{MaxVbr} \leq \text{MaxAgg}$. If the object is set to -1, the object is

considered to be unspecified. This object is not defined for logical port ATM interfaces.



Note:

The following fields can be disabled by entering the value 4294967295.

Max CBR PCR

This value specifies the maximum Peak Cell Rate (PCR) traffic parameter that can be specified for CBR connections in a traffic direction on an interface. It is specified in cells-per-second.

Max CBR Tolerance

This value specifies the maximum limit parameter, in cell-times, used in the GCRA algorithm for traffic policing that can be specified for CBR connections in a traffic direction on an interface.

Max VBR PCR

This value specifies the maximum PCR traffic parameter that can be specified for VBR connections in a traffic direction on an interface. It is specified in cells-per-second.

Max VBR SCR

This value specifies the maximum Sustained Cell Rate (SCR) traffic parameter that can be specified

for VBR connections in a traffic direction on an interface. It is specified in cells-per-second.

Max VBR Tolerance

This value specifies the maximum limit parameter used in the Generic Cell Rate Algorithm (GCRA) for traffic policing that can be specified for VBR connections in a traffic direction on an interface. It is specified in cell-times.

Max ABR PCR

This value specifies the maximum PCR traffic parameter that can be specified for ABR connections in a traffic direction on an interface. It is specified in cells-per-second.

Max ABR Tolerance

This value specifies the maximum limit parameter used in the GCRA algorithm for traffic policing that can be specified for ABR connections in a traffic direction on an interface. It is specified in cell-times.

Max UBR PCR

This value specifies the maximum PCR traffic parameter that can be specified for UBR connections in a traffic direction on an interface. It is specified in cells-per-second.

Max UBR Tolerance

This value specifies the maximum limit parameter used in the GCRA for traffic policing that can be

specified for UBR connections in a traffic direction on an interface. It is specified in cell-times.

Interface Resource Management State Information View

This view is a table implemented using integers. It provides the following information.

All of these fields are cross-referenced by Service Category. The categories are CBR, VBR RT, VBR NRT, ABR, and UBR.

Avail Cell Rate (RX)

The available cell rate, in cells per second, for traffic received on the interface for this Service Category. This is the bandwidth available for connections.

Avail Cell Rate (TX)

The available cell rate, in cells per second, for traffic transmitted on the interface for this Service Category. This is the bandwidth available to connections.

Alloc Cell Rate (RX)

The allocated cell rate, in cells per second, for traffic received on the interface for this Service Category. This is the bandwidth available for connections.

Alloc Cell Rate (TX)

The allocated cell rate, in cells per second, for traffic transmitted on the interface for this Service Category. This is the bandwidth available to connections.

Signalled Conns

The number of signalled connections (VC or VP) of this Service Category currently allocated on this interface.

Permanent Conns

The number of permanent connections (VC or VP) of this Service Category currently allocated on this interface.

Max Cell Trans. Delay

The Maximum Cell Transfer Delay estimated to be experienced by cells of connections transmitted on this interface for the Service Category.

Peak to Peak CDV

The default peak-to-peak Cell Delay Variation estimated to be experienced by cells of connections transmitted on this interface for the Service Category.

TX Cell Loss Ratio

The Cell Loss Ratio estimated to be experienced by cells of connections transmitted on this interface for the Service Category.

Interface Resource Management Statistics Information View

This view is a table implemented using integers. It provides the following information.

All of these fields are cross-referenced by Service Category. The categories are CBR, VBR RT, VBR NRT, ABR, and UBR.

Total Alloc Requests

The number of resource allocation requests for this interface.

Successful

The number of successful resource allocation requests for this interface.

Failed (Traffic Params)

The number of resource allocation requests which are considered to be in error due to an unsupported combination of traffic parameters.

Failed (Lack Bandwidth)

The number of resource allocation requests which are considered to be in error due to a lack of bandwidth.

Failed (Cell Loss)

The number of resource allocation requests which are considered to be in error due to exceeding cell loss criterion.

Failed (Delay)

The number of resource allocation requests which are considered to be in error because they exceed cell loss criterion.

Failed (Cell Delay Var)

The number of resource allocation requests which are considered to be in error because they exceed cell delay variation criterion.

Failed (BE Limit)

The number of resource allocation requests which are considered to be in error because they exceed a limit on the number of best-effort connections.

Failed (Parm Limit)

The number of resource allocation requests which are considered to be in error because they exceed cell delay variation criterion.

Failed (Other)

The number of resource allocation requests which are considered to be in error for an unknown reason.

Interface Resource Management Output Queue Configuration View

This view contains the Output Queue Configuration Table, which provides the following information:

Service Cat

The Service Category(s) sharing this output queue on the ATM interface. Possible bit positions are:

- 1: constant bit rate (CBR)
- 2: variable bit rate- real time (VBR-RT)
- 4: variable bit rate-non real time (VBR-NRT)
- 8: available bit rate (ABR)
- 16: unspecified bit rate (UBR)
- 24: not defined

Req. Max Size

The configuration of the maximum number of cells that may occupy this queue. If the default value is 0 then the queue size is calculated by software.

Inst. Max Size

The maximum number of cells that may occupy this queue. This value will be a multiple of 32.

Max Size Force

Changes the value of the Requested Maximum Size of a queue.

Cell Count

Count of the number of cells in the output queue.

Interface Resource Management Thresholds View

This view contains the Interface Thresholds table which provides threshold values for the following service categories: CBR, VBR-RT, VBR-NRT, ABR, and UBR.

Discard

The output queue Cell Loss Priority/EPD (CLP/PD) threshold for this Service Category on this ATM interface.

EFCI

The output queue Explicit Forward Congestion Indication (EFCI) marking threshold for this Service Category on this ATM interface.

Switch Application Interface Configuration View

Access: From the **Icon Subviews** menu for the Switching App icon, select **Interface Configuration**.

This view contains more detailed network configuration information for the device. This view is broken into two tables that are detailed below.

ATM IF Configuration Table

This table provides the following information about the ATM interface configuration:

IF Index

The unique value identifying the interface to which it is attached.

Max VPCs

Maximum number of Virtual Path Connections (VPCs) supported per interface.

Max VCCs

Maximum number of Virtual Channel Connections (VCCs) supported per interface.

Conf VPCs

The number of configured VPCs on the interface. Can range from 0-256.

Config VCCs

The number of configured VCCs on the interface.

Max VPI Bits

Maximum number of Virtual Path Identifier bits (VPI bits) allowed on this interface

Max VCI Bits

Maximum number of Virtual Channel Identifier bits (VCI bits) allowed on this interface.

ILMI VPI

The VPI value of the VCC supporting the ILMI at this ATM interface.

ILMI VCI

The VCI value of the VCC supporting the ILMI at this ATM interface.

Address Type

The type of primary ATM Address configured for use on this ATM interface. Possible values are: private, nsapel64, nativeE164, and other.

Admin Address

An address assigned for administrative purposes.

Neighbor Address

The IP Address of the neighbor system connected to the far end of this interface, to which a network management station can send SNMP messages in order to access network information concerning the operation of the neighbor system.

Neighbor IF Name

The interface name of the neighbor system connected to the far end of this interface.

IF Configuration Table

This table provides the following information about the LightStream interface configuration:

IF Index

The value of this object identifies the interface for which the entry contains management information.

Connections

The number of connections currently attached to the interface.

PVPs

The number of PVPs currently attached to the interface.

PVCs

The number of PVCs currently attached to the interface.

Active SVPs

The number of SVPs currently active on the interface.

Active SVCs

The number of SVCs currently active on the interface.

Xmit Cells

The number of cells transmitted on this interface.

Recv Cells

The number of cells received on this interface.

Model Information View

This section provides a brief overview of the Model Information view.

This view displays administrative information about the device and its applications and lets you set thresholds and alarm severity for the device.

Figure 8 shows a sample Model Information view. The layout of this view is the same for all model types in SPECTRUM but some information will vary depending on the model it defines. Refer to the **SPECTRUM Views** documentation for a complete description of this view.

Figure 8: Model Information Viewd

The screenshot shows the 'SpectroGRAPH: Model Name' window. The title bar includes 'File View Tools Bookmarks' and 'Help'. Below the title bar is a toolbar with various icons. The main content area is titled 'Model Information View' and contains several sections of input fields:

- Model Information View (highlighted in green):**
 - Model Name:
 - Network Address:
 - System Up Time:
 - Contact:
 - Description:
 - Manufacturer:
 - Location:
 - Primary Application:
 - Device Type:
 - Serial Number:
- General Information:**
 - MM Name:
 - MM Part Number:
 - MM Version Number:
 - Model Type:
 - Model Creation Time:
 - Model Created By:
 - Model State:
 - Security String:
 - Condition:
 - Condition Value:
 - Contact Status:
 - Lost Child Count:
 - Value When Yellow:
 - Value When Orange:
 - Value When Red:
- Communication Information:**
 - DCM TimeOut:
 - DCM Retry:
 - Community Name:
- Poll/Log Information:**
 - Poll Interval:
 - Polling Status:
 - Last Successful Poll:
 - Log Ratio:
 - LOGGED:
 - POLLED:

At the bottom, there is a status bar that reads 'type Model Type of Landscape: Primary'.

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